## Functioning of terrestrial ecosystems of the Maritime Antarctic in a warmer climate

Bokhorst, S.F.

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Field studies

*Experimental warming and soil respiration*

OTC effect on soil temperature at 5 cm depth in each community is summarized in table 3. As expected, soil temperatures were much lower at the Maritime Antarctic islands compared to the Falkland Islands. However, the difference between Anchorage and Signy Island was much smaller than the former. OTCs increased the mean annual temperature of the soil by approximately 0.8 °C. However, the increase was not similar between the communities or between the seasons. Degree days increased in all communities due to OTC deployment, potentially increasing the active period for organic matter breakdown. Soil respiration at Anchorage Island was higher ($P < 0.01$) than that of Signy and the Falkland Islands (Fig. 3). Experimental warming with OTCs increased ($P < 0.01$) soil respiration on the Falkland Islands and Signy Island but not at Anchorage Island.

Table 4 summarises the soil characteristics between locations and treatment. Anchorage Island had the highest soil nitrogen contents as compared to Signy and the Falkland Islands. OTC deployment did not affect soil nutrient content. The PCA of the main soil characteristics indicates a similar separation between the locations as in the laboratory study. The main separating factor is based on the soil nitrogen, with the highest values for Anchorage Island (Fig 4b).